

IMPLEMENTATION: MONITORING, EVALUATION, AMENDMENTS AND REVISIONS

INTRODUCTION

The direction in the chapter includes:

- Implementation
- Monitoring and Evaluation Program
- Amendments and Revisions

Collectively, these sections explain how management direction will be implemented, how Forest Plan implementation will be monitored and evaluated and how the Forest Plan will be kept current as the result of changing conditions or other findings.

IMPLEMENTATION

Implementation is the on-the-ground application of management practices and standards/guidelines to move toward the management prescription desired future condition. This is achieved through an integrated resource management (IRM) approach, assuring interdisciplinary teamwork and public involvement throughout the process. The major steps of the IRM approach are:

1. Selecting land areas that best provide opportunities for accomplishing the Forest Plan management direction.
2. Analyzing the situation and identifying multi-resource projects that assure an integrated approach to achieving the desired future condition.
3. Prioritizing, scheduling and budgeting the multi-resource projects that best meet the Forest Plan management direction.
4. Designing the projects to accommodate the integrated needs for all resources and values.
5. Completing the multi-resource projects as designed.
6. Protecting and managing the resources and providing public health and safety.

A detailed description of the Integrated Resource Management approach is included in the-USDA Forest Service Eastern Region publication, "Working Together For Multiple Use - IRM".

Implementation Schedule

An implementation schedule for all resource projects and activities will be developed and maintained. (See Forest Plan Appendix B for a partial listing). The implementation schedule is a formulation of site specific projects and

activities which will carry out the Forest Plan direction. The projects are coordinated management practices developed in an interdisciplinary manner. The schedule will include all proposed projects including names, locations, and dates of execution. The Forest Supervisor is responsible for maintaining and revising the implementation schedule, as appropriate. At least annually, the public will be notified of changes to the implementation schedule. A law enforcement action guide will be developed to meet Forest Plan direction and be implemented by September 30, 1987.

Budget Proposals

Annual program budget proposals will be developed to identify and plan the needed expenditures. The final approved budget as appropriated by Congress will determine the annual program of work which will be carried out.

The Forest Supervisor may adjust the implementation schedule to reflect differences between the annual proposed budget and appropriated funds. Such schedule changes are considered nonsignificant amendments to the Plan unless they significantly alter the Forest Plan goals and objectives.

Environmental Analysis

The decision documented in the Record of Decision, and the direction included in this Forest Plan, narrow the scope of future environmental analyses. The Plan direction and the Final Environmental Impact Statement information will be used through "tiering". Tiering means that reference will be made to information in the Forest Plan, the Final EIS and the planning records, rather than repeating it in project-level environmental documents. This is done to avoid duplicating information and to concentrate the analysis and decisions on project-level issues.

To implement the Forest Plan environmental analyses will be completed to develop pools of grouped projects in integrated project sets which will spatially arrange specific desired future conditions on parts of the Forest (Step 2 of the IRM process), according to Management Prescriptions. At Step 4, site specific analyses of the environmental effects of the proposed actions will be conducted to meet the requirements of NEPA, NFMA, other laws and regulations, and decision documents executed.

The analysis may be documented in an environmental assessment or an environmental impact statement, depending on the significance of effects which may be caused by the project. Many projects may be categorically excluded from documentation if their environmental consequences are found to be nonsignificant.

The public will be involved in the future decisions that implement the Forest Plan direction. Parties who have, in writing, requested information on management activities and their supporting environmental documents will be notified of the decisions.

Compliance with the Forest Plan

Within two years after approval of the Plan the Forest Supervisor will ensure that all existing projects, outstanding and future permits, contracts, cooperative agreements, and other instruments for occupancy and use of affected lands, subject to valid existing rights, are consistent with the Plan.

MONITORING AND EVALUATION PROGRAM

The purpose of monitoring and evaluation is to determine progress in meeting Forest Plan direction. Monitoring and evaluation are separate, sequential activities that provide information to determine whether Forest programs are meeting Plan direction. This direction includes management goals, objectives, management prescriptions, standards and guidelines. It is through this process that the quality of implementation is assessed and any needed changes in Forest Plan direction are determined.

Monitoring

Monitoring is done to observe or record the results of actions. This consists of collecting information from selected sources on a sample basis. Information is used to determine:

- If Forest Plan goals and objectives are being achieved
- If management prescriptions are being applied as directed
- If the results of applying prescriptions address the management problems and issues, concerns and opportunities and if new management problems are arising
- If effects are occurring as predicted, and
- If costs of implementing the Plan are as predicted

The role of management prescriptions is the key in monitoring. All the results of natural resource management occur through the prescriptions as they are applied.

There are two considerations that determine monitoring requirements. They are: (1) monitoring needs required by the National Forest Management Act, and (2) additional considerations found to be significant and linked to the resolution of specific public issues, management concerns, resource development opportunities, and the corresponding environmental effects.

Table 5-1 displays the monitoring requirements for the Mark Twain National Forest.

Monitoring will be done on a sample basis. The frequency, precision, and reliability are based on the relative importance and identified needs. A full spectrum of data-collection techniques will be used, including:

- Site-specific observation by specialists
- Field assistance trips
- General field observations
- Management Attainment Reporting System
- Formal management reviews on a scheduled basis, and
- Discussions with other agencies and general public users

The specific monitoring program will be included as part of the Forest Annual Program of Work, which includes details on the schedule of monitoring actions, specific location, costs, and responsibilities.

Evaluation

Evaluation determines how well actual results are meeting Forest Plan direction. Information obtained through monitoring is analyzed with respect to Plan implementation.

Results from the various monitoring techniques provide input for the evaluation task. Figure 5-1 shows the organizational responsibilities in monitoring and evaluating the Forest Plan. Figure 5-2 displays recommendations that may occur, based on findings during the monitoring and evaluation process.

A review and evaluation of monitoring results will be conducted by the Forest Supervisor on an annual basis. The review and evaluation will focus on the monitoring requirements in Table 5-1, using input from the various monitoring techniques described earlier. Based on this evaluation, the Forest Interdisciplinary Team will make recommendations to the Forest Supervisor on proposed amendments, revisions, or changes in management direction to the Forest Plan. The Forest Supervisor's decisions resulting from monitoring, review, and analysis will be documented in an annual Evaluation Report and maintained for future use in amending or revising the Plan.

During the revision of the Forest Plan, normally 10 to 15 years after the Plan is approved, an overall evaluation of the Annual Evaluation Reports will be used as one measure to analyze the management situation and identify a need for change. The analysis will be submitted to the Regional Forester for review prior to revision of the Plan. The same procedure will be used for significant amendments to the Plan that may require the filing of another EIS.

Management Review System

The management review system (Forest Service Manual 1410) is an important part of the monitoring and evaluation process. Management reviews are performed periodically by the Forest Supervisor and Regional Forester, focusing on information found during monitoring and evaluation.

Normally every five years a General Management Review will be conducted by the Regional Forester. This review will evaluate the results of the Forest's implementation, monitoring, and evaluation efforts and will make recommendations on needed improvements.

AMENDMENTS AND REVISIONS

The Forest Plan will be kept valid and current through the use of amendments and revisions. The guidance for making these changes is 36 CFR 219.10(e)(f) and (g) and Forest Service Manual Section 1922.

Plan Amendments

The need to amend the Forest Plan may come from several sources, such as recommendations of the Interdisciplinary Team based on monitoring and evaluation, changes in implementation schedules based on actual funding received, or changes in conditions.

The Forest Supervisor will determine whether proposed changes in the Forest Plan are "significant" or "nonsignificant." This determination will be based on an analysis of the goals, objectives, standards, guidelines, and other content of the Forest Plan. The determination of "significant" or "nonsignificant" will be documented. Appropriate public notification will be made prior to implementing the changes. The determination of the significance or nonsignificance of an amendment is an integral part of the decision making process. As such it is appealable under the National Forest System appeal procedures as described in 36 CFR 211.18.

If the change resulting from the proposed amendment is determined to be significant, the Forest Supervisor will follow the same procedure as that required for development and approval of a Forest Plan. These changes will require approval by the Regional Forester.

If the proposed change is determined to be nonsignificant, the Forest Supervisor may implement the amendment following appropriate public notification and completion of NEPA procedures.

An annual summary of Forest Plan amendments will be prepared and incorporated into the Plan as additions, and will be made available to interested parties. This is to ensure that the Plan will remain current. A summary of Forest Plan amendments will be submitted to the Regional Forester with the year-end attainment report information, which is due about October 20 each year.

Plan Revisions

The National Forest Management Act requires revision of the Forest Plan at least every 15 years. However, the Plan may be revised sooner if physical conditions or demands on the land and resources have changed sufficiently to affect overall goals or uses for the entire Forest.

The Forest Supervisor will review the physical conditions and demands on the land, based on results of monitoring and evaluation. Any recommendations for Plan revision will be forwarded to the Regional Forester for approval. If a Plan revision is warranted, the Chief will approve the revision schedule.

Table 5-1
MARK TWAIN NATIONAL FOREST
MONITORING AND EVALUATION

| NFMA Required | Purpose of Monitoring | Activity Effect Practice Output | Unit/ Frequency of Measure | Expected Precision/ Reliability |
|---|--|---|---|--|
| Ref. to Regs. 219.12(k) | | | | |
| Evaluate how well management prescriptions, practices, standards and guidelines have been applied to the ground. (Management Problems 2 and 3) | Determine if Forest Plan prescription practices, standards and guidelines are correctly being applied and adhered. | Practices and programs application by management area. Done by activity reviews and technical assistance trips. | Standards and Guidelines/ Annual | High/High. |
| Ref. to Regs. 219.12(k)(1) | | | | |
| A quantitative estimate of performance - comparing outputs/ services with those projected in Forest Plan. (Management Problems 5, 7, and 10) | Compare accomplishments with outputs. | Timber, Semi-Primitive Nonmotor, Semi-Primitive Motor, Roaded, Natural, Rural, Wilderness, Wildlife, Range | Various as shown in MARS1// Annual. | High-Moderate/ High-Moderate. |
| Ref. to Regs. 219.12(k)(2) | | | | |
| Document measured prescriptions/effects, including significant changes in productivity of the land. (Management Problem 3) | Determining the effects of applying Forest Plan standards/ guidelines. | Plan standards and guidelines Particularly: soil productivity LAC Wilderness | Varied/ Annual. T-Value2/ Compliance by project/ Annual. Standards & Guidelines/ Annual | High/High. Moderate/ Moderate. Moderate/ Moderate. |
| 1/ Management Attainment Reports System | | | | |
| 2/ See Forest-wide 2500 Standards and Guidelines | | | | |

Table 5-1 (Continued)
MARK TWAIN NATIONAL FOREST
MONITORING AND EVALUATION

| NFMA Required | Purpose of Monitoring | Activity Effect Practice Output | Unit/ Frequency of Measure | Expected Precision/ Reliability |
|--|--|--|---|---------------------------------------|
| Ref. to Regs. 219.12(k)(3) | | | | |
| Document cost of actual management practices in relationship to estimated costs. (Management Problem 9) | Verification of unit costs used in Plan. Build data for Plan revision. | Unit costs and trends with emphasis on timber decision variables and support costs for all decision variables. | \$/Annual. | High/High. |
| Ref. to Reg. 219.12(k)(5) | | | | |
| Lands are adequately restocked as specified in the Forest Plan. | Assure lands adequately stocked with- in 5 years. | Regeneration. | Acres/First and third year after reforesta- tion. | High/High. |
| Lands identified as not suited for timber production are examined at least every 10 years, if suited, are returned to timber production. | Evaluate availability. | Unsuitable lands. | Acres/ Not longer than every 10 years. | Moderate/ Moderate. |
| Destructive insects/ disease does not increase to potentially damaging levels. (Management Problem 7) | Determine extent and severity of insect and occurrence. | Insect and Disease. | Occurrence sample and acres of mortality/ Annual. | Moderate/ High. |

Table 5-1 (Continued)
MARK TWAIN NATIONAL FOREST
MONITORING AND EVALUATION

| NFMA Required | Purpose of Monitoring | Activity Effect Practice Output | Unit/ Frequency of Measure | Expected Precision/ Reliability |
|--|---|---|--|---|
| Ref. to Reg. 219.12(k)(5) (Continued) | | | | |
| Determine maximum size limits for harvest areas as specified in management prescriptions, standards and guidelines. (Management Problems 3 and 7) | Determine if standards and guidelines are achieving the desired results. | Timber, Wildlife, Visual Quality, Recreation. | Acres/ Not longer than every 5 years. | Moderate/ Moderate. |
| Ref. to Regs. 219.7(f) | | | | |
| Effects of NF management on adjacent lands and effects upon NF lands by other government agencies. | Identify emerging issues, concerns, and opportunities (including problems of agency coordination). | NF policies. | Varies/ Annual. | Moderate/ Moderate. |
| Ref. to Regs. 219.28 | | | | |
| Identify research needs to support or improve NF management. | Determine research implementation progress and opportunities. Revise needs and priorities for research. | Research in Plan. RNA classified. | Pertinent study plans implemented/ Annual. No/Annual | Moderate/ Moderate. High/High |

Table 5-1 (Continued)
MARK TWAIN NATIONAL FOREST
MONITORING AND EVALUATION

| NFMA Required | Purpose of Monitoring | Activity Effect Practice Output | Unit/ Frequency of Measure | Expected Precision/ Reliability |
|--|---|---|--|---------------------------------------|
| Ref. to Regs. 219.19 | | | | |
| Monitor population trends in indicator species as result of management practices. (Management Problem 4) | Determine whether population indicate that viable populations of all wildlife species are being maintained. | Habitat standards and guide-lines by LTA, by indicator species | (1) (2) (3) Habitat accomplish-ment(acres)/ Annual on minimum of 5 acres (LTA's). | High/High. |
| Three types of monitoring: (1) Population trend expected from changes in availability of suitable habitat. Sampling involves about 10% of Forest per year through integrated resource surveys, (including TMIS and WMIS data base). | | Mgt. Area 3.4 OPB-LTA Interspersion Pattern 1 - Raccoon, Wood Thrush - Ruffed Grouse, Eastern Bluebird. | (3) Baseline population measures. Animal No./ Decade | Moderate/ Moderate. |
| (2) Population trends based upon State or USF&WS harvest, hunter or trapper data. Nonstatistical observations may be useful. | | OBH-LTA Interspersion Pattern 5- Turkey- White-tailed Deer, Bobcat, Indigo Bunting, Eastern Bluebird | (1) Post treat-ment measures (Acres)/ Annual for 1986, 87, 88, 89 on minimum of 5 acres. (LTA) | |
| (3) Preplanned, standardized field surveys and counts of animals or their sign by USFS, State, USF&WS, and others. | | | | |

Table 5-1 (Continued)
MARK TWAIN NATIONAL FOREST
MONITORING AND EVALUATION

| NFMA Required | Purpose of Monitoring | Activity Effect Practice Output | Unit/ Frequency of Measure | Expected Precision/ Reliability |
|---------------|-----------------------------|--|----------------------------------|---------------------------------------|
|---------------|-----------------------------|--|----------------------------------|---------------------------------------|

Ref to Regs. 219.19 (Continued)

Mgt. Area 3.4

OBP-LTA
Interspersion
Pattern 4-
Turkey,
Eastern
Bluebird,
Bobwhite
Quail,
Cottontail
Rabbit,
Orchard
Oriole.

Mgt. Area 4.1

OPB-LTA
Interspersion
Pattern 2-
Raccoon,
Pileated
Woodpecker
Ovenbird,
Wood Thrush,
Ruffed Grouse.

Mgt. Area 6.2

OPH-LTA
Interspersion
Pattern 2-
White-tailed
Deer, Bobcat,
Pileated
Woodpecker,
Ovenbird,
Wood Thrush.

Table 5-1 (Continued)
MARK TWAIN NATIONAL FOREST
MONITORING AND EVALUATION

| NFMA Required | Purpose of Monitoring | Activity Effect Practice Output | Unit/ Frequency of Measure | Expected Precision/ Reliability |
|---|--|---|---|--|
| | | Fish population by LTA and stream order. | (2) (3) Number by species/ sites per year. | High/ High. |
| Population trends of the management indica- tor species will be monitored and relation- ships to habitat changes determined in cooperation with State fish and wildlife agencies | Federally listed endangered species will be monitored to protect, maintain and/ or enhance principal habitat(s) to achieve recovery objectives | Bald Eagle, Indiana Bat Gray Bat | (3) *As necessary to meet requirements of any biological opinion resulting from formal consultation, and as out- lined in conservation program developed by the Forest.* | High/High. Moderate/ Moderate. Moderate/ Moderate. |
| Three types of monitoring: | | | | |
| (1) Population trend expected from changes in availability of suit- able habitat. Sampling involves about 10% of Forest per year through integrated resource surveys, (including WMIS data base). | *and to meet requirements outlined in any biological opinion issued by USFWS as a result of Formal consultation.* | Ozark big- eared bat Curtis Pearly mussel Fat pocket- book mussel | (3) (3) (3) | Moderate/ Moderate. Moderate/ Moderate. Moderate/ Moderate. |
| (2) Population trends based upon State & USF&WS harvest, hunter or trapper data. Nonstatistical observations may be useful. | Determine changes in populations resulting from management. | Higgins' eye pearly mussel Pink musket pearly mussel Ozark Cave fish Least Tern | (3) (3) (3) (3) (3) | Moderate/ Moderate. Moderate/ Moderate. Moderate/ Moderate. Moderate/ Moderate. |
| (3) Preplanned, standardized field surveys and counts of animals or their sign by USFS, State, USF&WS, and others. | | | As necessary to support species recovery plan. | |

Table 5-1 (Continued)
MARK TWAIN NATIONAL FOREST
MONITORING AND EVALUATION

| NFMA Required | Purpose of Monitoring | Activity Effect Practice Output | Unit/ Frequency of Measure | Expected Precision/ Reliability |
|--|---|---|---|--|
| Management Problem 1 Land adjustment and land line survey. | To determine if program objectives are being met. | Land Acquisition Land Exchange Land Line Survey | Acres/ Annual. Acres/ Annual. Miles/ Annual. | High/High. High/High. High/High. |
| Management Problem 2 Eleven Point River Management | Determine if local and visitor ex- pectations are being met and identify conflicts between users. | Recreation experience. Recreation use levels. Environmental damage. Issues. | Individual Comments/ Annual. RIM/ Annual. Number of problem sites found. Individual/ Annual. | Moderate/ Moderate. Moderate/ Moderate. Moderate/ Moderate. |
| Management Problems 3, 4, 7 Vegetation Manipulation | Compare accomplish- ment with objectives, assure allow- able sale quantity not exceeded; confirm that silvicultural intent of management prescriptions met; assure harvest on unsuitable lands is in- cidental and and/or meets other resource needs. | Timber harvest. | MMBF and acres by harvest method, management prescrip- tion, and timber type/ Quarterly. | Very High/ Very High. |

Table 5-1 (Continued)
MARK TWAIN NATIONAL FOREST
MONITORING AND EVALUATION

| NFMA Required | Purpose of Monitoring | Activity Effect Practice Output | Unit/ Frequency of Measure | Expected Precision/ Reliability |
|---|---|---|--|--|
| Management Problem 3, 4, 7 Vegetation Manipulation (Continued) | | | | |
| | Confirm compliance with standards, particularly regeneration, acreages, opening size, and spacing, and other vegetation practices. (Ref. to Regs. 219.12 (k)(5). | Plan standards and guidelines | Varies/ Annual. | High/High. |
| | Evaluate uneven-aged management on selected sites | Plan standards and guidelines Achievement of results | Acres/ annual Stand structure achieved/ 5 years | Moderate/ Moderate Moderate/ Moderate |
| | Verify public's reaction to vegetation manipulation, and forest accomplishment. | VQO. | Individual comments & acres/ Annual. | Moderate/ Moderate. |
| | Verify maintenance and/or enhancement of diversity. | Diversity resulting from changes in vegetation pattern and composition. | Diversity Index/ Annual. | Low/ Moderate. |
| | Verify Diversity Index developed for Forest Plan. | | | |

Table 5-1 (Continued)
MARK TWAIN NATIONAL FOREST
MONITORING AND EVALUATION

| NFMA Required | Purpose of Monitoring | Activity Effect Practice Output | Unit/ Frequency of Measure | Expected Precision/ Reliability |
|---|--|---|---|---------------------------------------|
| Management Problem 3, 4, 7 Vegetation Manipulation (Continued) | | | | |
| | Achievement of special area classi- fication objective. | Candidates resolved | Numbers/ Annual. | High/High. |
| Management Problem 6 Roads | Determine if road closures are com- patible with Plan intent. | Road use controls. | Miles/Each. | High/High. |
| | Determine if road plans meet project intent. | Road design | Project/ Each. | High/High. |
| | Determine if road con- struction conforms to plans. | Road design. | Project/ Each. | High/High. |
| | Limit effects of corridor locations. | Utility or transporta- tion corridors. | Miles/ Annual | High/ Moderate. |
| Management Problem 8 Minerals | Compliance with standards, operating plans, and EAs to check on environ- mental effects. | Mineral operations. | Sites/ As needed during operations but at least annual. | High/High. |

Table 5-1 (Continued)
MARK TWAIN NATIONAL FOREST
MONITORING AND EVALUATION

| NFMA Required | Purpose of Monitoring | Activity Effect Practice Output | Unit/ Frequency of Measure | Expected Precision/ Reliability |
|--|--|--|----------------------------------|---------------------------------------|
| Management Problem 8 (Continued) Minerals | | | | |
| | Assure minerals are available for explora- tion and development. | Land available for mineral development. | Acres/ 5 years. | High/High. |
| Concern 9 Economic Efficiency (Also see documenta- tion of costs of actual prescriptions with estimated costs). Reference Regs. 219.12(k)(3). | Verify return to treasury, returns to local government and plan benefits. | Benefits. | \$/Annual. | Moderate/High. |
| | Reevaluate local economic parameters. | Population, income employment, industrial needs. | Varies/ Every 5 years. | Moderate/ Moderate. |

